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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/813,010	03/31/2004	Gotz-Peter Schindler	250484US	5252
22850 7590 02/27/2007 OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER SACKEY, EBENEZER O	
			ART UNIT	PAPER NUMBER
			1624	
SHORTENED STATUTORY PERIOD OF RESPONSE		NOTIFICATION DATE	DELIVERY MODE	
3 MONTHS		02/27/2007	ELECTRONIC	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/27/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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## Office Action Summary

Application No.

10/813,010

Applicant(s)

SCHINDLER ET AL.

Examiner

EBENEZER SACKY

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>03/31/04</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

This is in response to applicants remarks/arguments filed on 11/27/06.

#### **Status of the Claims**

Claims 1-5 and new claims 6-20 are pending.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Maher et al., (EP 0 938 463).

Applicants claim a process for preparing at least one partial oxidation and/or ammoxidation product of hydrocarbon, in which a hydrocarbon is subjected to a homogeneously and/or heterogeneously catalyzed dehydrogenation in the presence a series of steps to give a gas mixture (1) comprising propane and propylene, and (b) part of the constituents other than propane and propylene present in the gas mixture (1) formed in the first step is separated off from the gas mixture (1) and/or converted into other compounds so as to produce a gas mixture (1') comprising propane and propylene and also compounds other than oxygen, propane and propylene from the gas mixture (1) and, in at least one further step (c) gas mixture (1) and/or gas mixture (1')

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are/is subjected as constituent of gas mixture (2) to a heterogeneously catalyzed gas-phased partial oxidation and/or partial gas-phased ammoxidation.

Maher et al., teach a process for converting alkane into unsaturated aldehydes such as acrolein and acrylic acid from alkanes, particularly propane is converted to the corresponding alkene in the presence of oxydehydrogenation catalyst and thereafter, oxygen is added to the effluent of the oxidation reaction and the mixture passed over a catalyst to convert the aldehyde to the corresponding carboxylic acid. Then separating the effluent into product stream comprising carboxylic acid and recycle gas stream. The residual gases are recycled back to the reaction zone to comprise a portion of the feed stream. See the entire reference especially page 2, column 2, lines 10-55, page 3, column 1, lines 1-57, page 6, column 10, line 19, Example 1 and claims 1-8.

### **Claim Rejections - 35 U.S.C. § 103**

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

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USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-5 and new claims 6-20 submitted on 11/27/06 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maher et al., EP 0 938 463.

Applicants claim a process for preparing at least one partial oxidation and/or ammoxidation product of propylene, in which (a) crude propane is subjected to a homogeneously and/or heterogeneously catalyzed dehydrogenation and/or oxydehydrogenation in the presence and/or absence of oxygen in the first step to give a gas mixture (1) comprising propane and propylene, and (b) part of the constituents other than propane and propylene present in the gas mixture (1) formed in the first step is separated off from the gas mixture (1) and/or converted into other compounds so as to produce a gas mixture (1') comprising propane and propylene and also compounds other than oxygen, propane and propylene from the gas mixture (1) and, in at least one further step (c) gas mixture (1) and/or gas mixture (1') are/is subjected as constituent of gas mixture (2) to a heterogeneously catalyzed gas-phased partial oxidation and/or partial gas-phased ammoxidation.

**Determination of the scope and content of the prior art (MPEP §2141.01)**

Maher et al., teach a process for converting alkane into unsaturated aldehydes such as acrolein and acrylic acid from alkanes, particularly propane is converted to the corresponding alkene in the presence of oxydehydrogenation catalyst and thereafter,

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oxygen is added to the effluent of the oxidation reaction and the mixture passed over a catalyst to convert the aldehyde to the corresponding carboxylic acid. Then separating the effluent into product stream comprising carboxylic acid and recycle gas stream.

The residual gases are recycled back to the reaction zone to comprise a portion of the feed stream. See the entire reference especially page 2, column 2, lines 10-55, page 3, column 1, lines 1-57, page 6, column 10, line 19, Example 1 and claims 1-8.

**Ascertainment of the difference between the prior art and the claims (MPEP §2141.02)**

The difference between the instant invention and Maher et al., is that the instant invention requires the content of 1-butene in the gas mixture 2 to be  $\geq$  1% by volume (claim 1). However, there is no evidence of record to distinguish the process of Maher from the instant process because applicants' process steps are similar to that of Maher et al. Additionally, modifying process conditions such as the gas mixture contents are not a patentable modification absent a showing of criticality. *In re Aller*, 220 F.2d 454, 105 U.S.P.Q. 233 (C.C.P.A. 1955). Note Maher teaches that the presence of impurities do not affect the process. See page 3 column 3, paragraph 0015. Also note the starting material, alkane may be a mixture of various alkanes. Note the use of starting material, isobutene resulting in the production of methacrolein and/or methacrylic acid on page 3, paragraph 0014-0016, propylene to acrolein on page 4 column 6, paragraphs 0023-0025.

**Finding of prima facie obviousness---rational and motivation (MPEP §2142-2143)**

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Thus, at the time of filing this application, one of ordinary skill in the art would have had a reasonable expectation of success in employing the process steps of Maher et al., because Maher et al. teach that dehydrogenation of alkanes to corresponding products such as acrolein are known. The requisite motivation being the desire to prepare various products by dehydrogenating alkanes to the corresponding products, which as the reference teaches is well known. Thus, a slight difference in the dehydrogenating zone of process parameters may serve to differentiate the process from under 35 U.S.C 102 but, does not serve to remove the relied upon reference from under 35 U.S.C 103.

Therefore, at the time of filing this application, one of ordinary skill in the art in possession of Maher et al., would have had a reasonable expectation of success in practicing the instant invention absent a showing of unexpected results and/or properties.

### ***Response to Arguments***

Applicant's arguments filed 11/27/06 have been fully considered but they are not deemed persuasive. Applicants argue that all claims in the application require subjecting the product gas mixture A, the product gas mixture A' and/or the gas mixture B to at least one mechanical separating operation by which solid particles present in these gas mixtures can be removed. Applicants argument does not give rise to any patentable subject matter, the separation of solid particles, that applicants presume to be the patentable distinction must be claimed with other significant steps. Currently, such steps are absent from the claims. See *Ex parte Deutschmann*, 114 U.S.P.Q. 536 (1957). The aforementioned argument is nothing more than the optimization of

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reaction conditions in order to increase yield and/or selectivity and as such, is well within the purview of the skilled artisan. Note Maher teaches that the presence of impurities does not affect the process. See page 3, column 3 paragraph 0015. Also note that the starting material alkane may be a mixture of various alkanes. Applicants have not even disclosed reaction temperatures or the gas hourly space velocity, which of necessity may liquefy some of the solid particles being removed. Note that the limitations of new claim 6-20. Note the use of starting material isobutene resulting in the production of methacrolein and/or methacrylic acid page 3, paragraphs 0014-0016, propylene to acrolein in page 4, column 6, paragraphs 0023-0025.

Unexpected results in the form of a declaration would be evidence of unobviousness in the current process. Thus, applicant's arguments, unsupported by any evidence are insufficient to overcome the rejections of record.

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to E. Sackey whose telephone number is (571) 272-0704.

The examiner can normally be reached on Monday-Friday from 7:30 am to 4:30 pm.

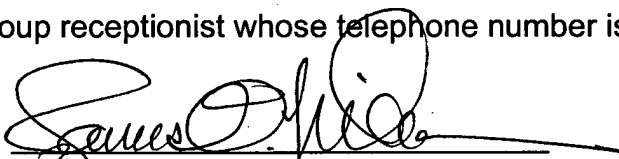
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James O. Wilson, can be reached on (571) 272-0661. The fax phone number for this Group is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is

(571) 272-1600.

EOS

February 20, 2007



James O. Wilson  
Supervisory Patent Examiner  
Art Unit 1624, Group 1600  
Technology Center 1